# The identification of *Mycelium radicis atrovirens* (*Phialocephala dimorphospora*)[1,2]

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*Mycelium radicis atrovirens* is known as a sterile fungus colonizing the surface of rootlets of trees in the boreal forest. Microscopic examination of 41 isolates conforming in vegetative morphology to the type description of this fungus revealed the presence of phialoconidia corresponding to *Phialocephala dimorphospora* in 15.

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Le *Mycelium radicis atrovirens* est connu comme un champignon stérile colonisant surtout les radicelles des arbres de la forêt boréale. L'examen microscopique de 41 isolats a révélé la présence de phialoconidies correspondant à celles du *Phialocephala dimorphospora* dans 35% des cultures.

*Mycelium radicis atrovirens* Melin is a dark sterile mycelium which can be readily isolated, in the boreal forest, from the surface of mycorrhizae and especially from pseudomycorrhizae, and also from soil particles (Gams 1963; Pachlewski 1967; Hatch 1934; Manka 1960; Richard and Fortin 1970; Linhell 1939). It is found both in nature and in the nursery. A good description of this organism in culture was given by Melin (1923). Levisohn (1963) and Gams (1963) completed its description with its reactions on different media and substrates.

Fungi identified as *M. radicis atrovirens* can still be confused with other dark sterile mycelia because of the lack of clear-cut diagnostic characters. Wilhelm *et al.* (1969) considered mycelia isolated from tomato, strawberry, potato, and various weeds to be similar to *M. radicis atrovirens* and to *Pyrenochaeta* sp., and referred to them as the "gray sterile fungus." Williams (cf. Gams 1963) isolated *M. radicis atrovirens* from soil. Gams (1963) reported that two strains of *M. radicis atrovirens* produced conidiophores and conidia of *Phialocephala dimorphospora* Kendrick. As far as we know, this is the only published observation recording sporulation by a fungus assigned to *M. radicis atrovirens*.

On close examination of all 41 strains of *M. radicis atrovirens* in our collection, we noted that conidiogenous heads (Fig. 1) with metulae, phialides, and phialoconidia (Figs. 2 and 3) were present on aerial hyphae of 15. The structure of these complex conidiophores places them in *P. dimorphospora* (Kendrick 1961). Among the sporulating strains, one was obtained from P. Mikola (University of Helsinki, Finland), one from R. Pachlewski (Forest Research Institute, Warsaw, Poland), and five from D. S. Malla (The Danish Forest Experiment Station, Springforbi, Denmark). We isolated the others from short roots of *Picea mariana* (Mill.) BSP. seedlings in the provincial nursery at Berthierville (Quebec) and in the natural stands of the Laurentides Provincial Park (Quebec). The cultures have been kept in tubes on modified Melin and Das medium (Fortin 1967), at low temperature (5°C). The conidiophores are often found on the lower part of the slant, where water droplets are visible. Cultures producing phialoconidia were invariably at least 1 year old.

Comparing *M. radicis atrovirens* with a culture of *P. dimorphospora* obtained from the Laurentian Forest Research Laboratory (No. Q552), we found them quite similar both on macroscopic and microscopic examination (Figs. 3–8). How-

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ever, the conidiophores of the *P. dimorphospora* isolates were generally darker and the collarette more conspicuous (Fig. 4).

It seems desirable that any future mention of *M. radicis atrovirens* should specify whether or not examination for conidiophores of *P. dimorphospora* was performed on cultures of appropriate age. The reasons for such delayed fruiting in some isolates are not clear.

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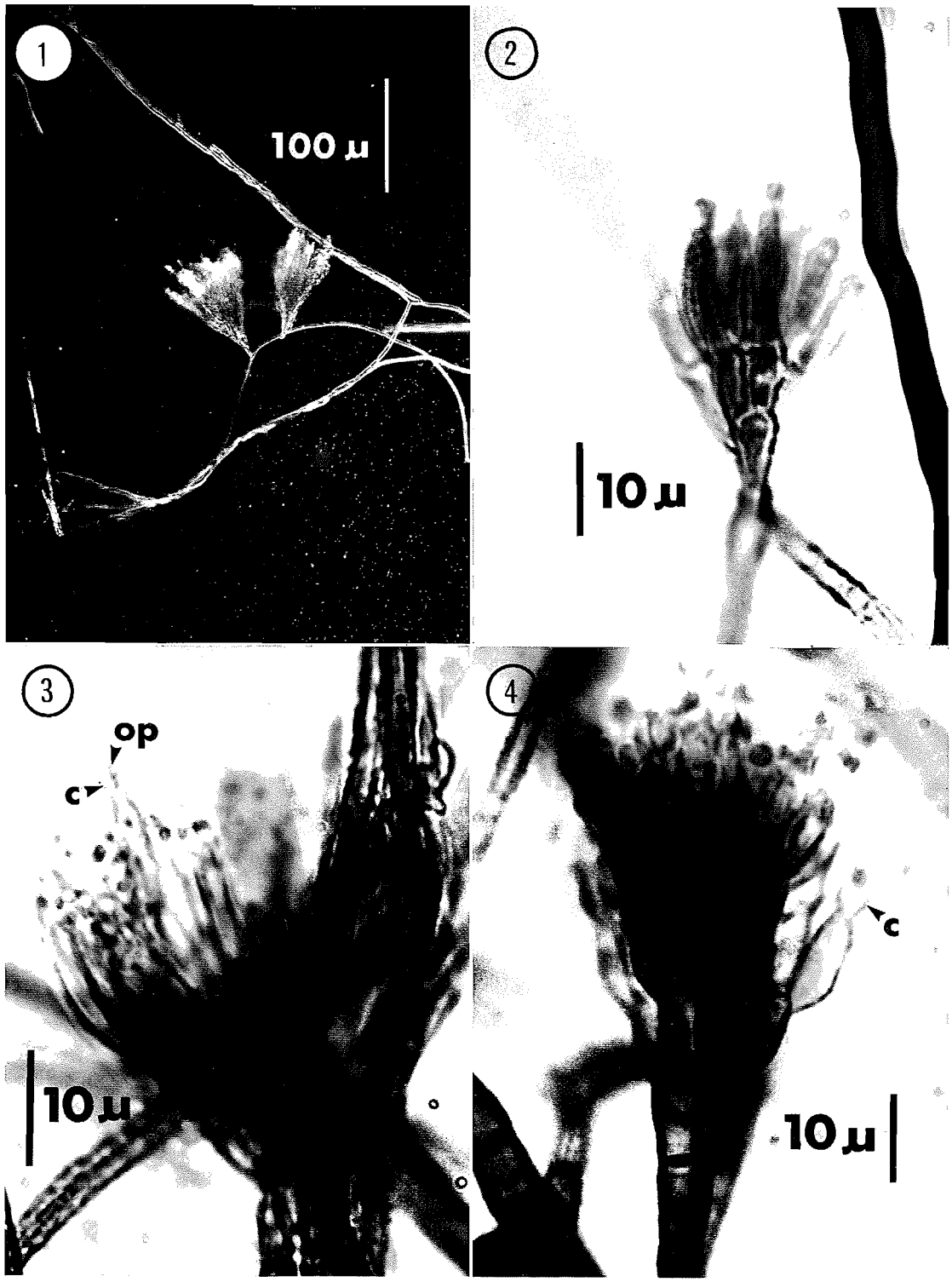
ABBREVIATIONS USED: *c* = collarette; *op* = ovoid phialoconidium.

FIGS. 1–3. *Mycelium radicis atrovirens* in culture. Fig. 1. Mycelium bearing conidiophores. Fig. 2. Metulae, phialides, and phialoconidia. Fig. 3. Phialide with collarette and ovoid phialoconidium. FIG. 4. *Phialocephala dimorphospora*. Phialide with collarette and spherical phialoconidium.

FIGS. 5, 7, and 9. *Mycelium radicis atrovirens*. FIGS. 6, 8, and 10. *Phialocephala dimorphospora*. Figs. 5 and 6. After 4 and 5 weeks respectively. Figs. 7 and 8. Some rough-walled hyphae. Figs. 9 and 10. Hyphal coil.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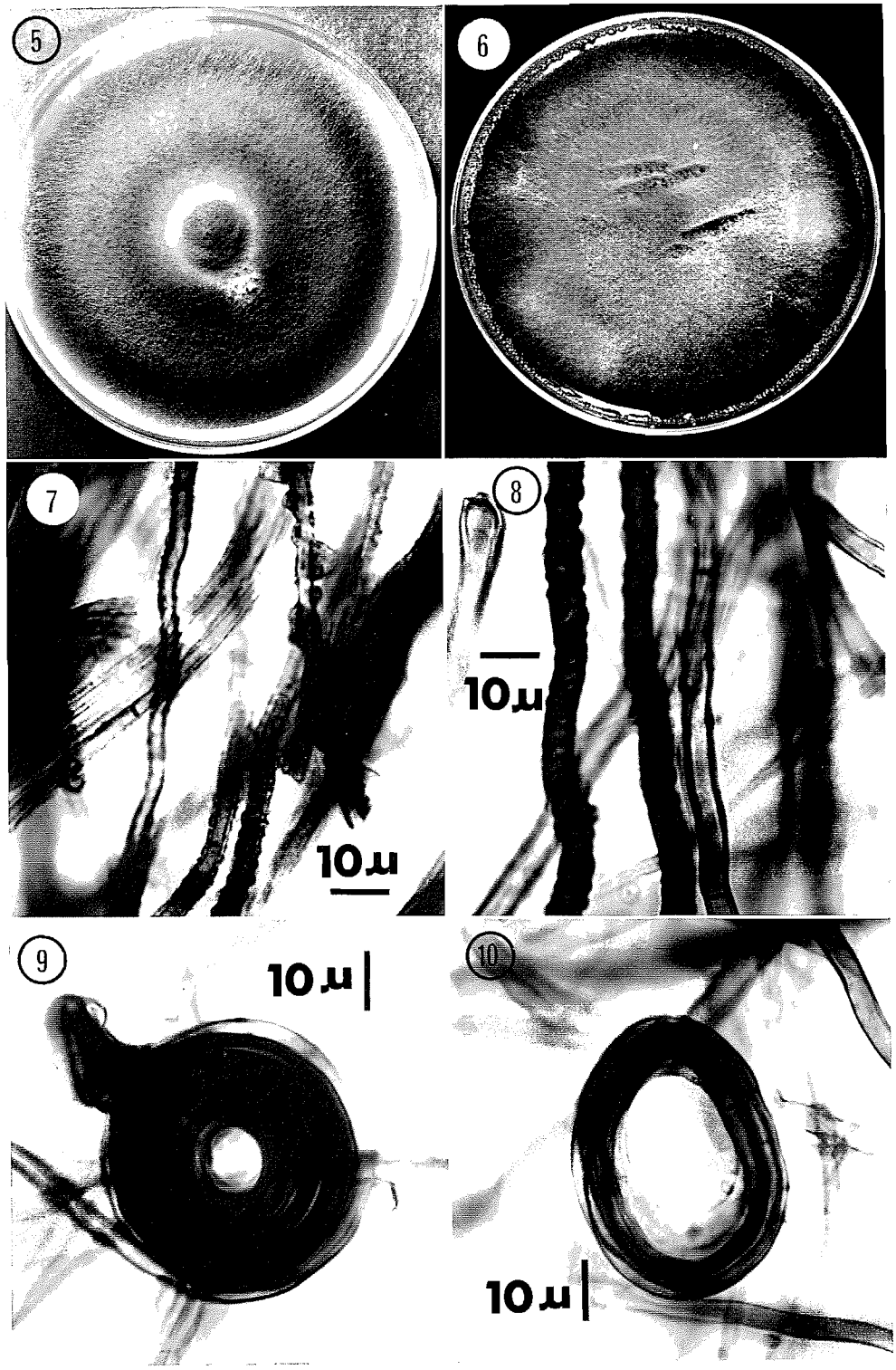
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